(12) UK Patent (19) GB (11) 2 384 027 (13) B

(45) Date of publication: 12.04.2006

(54) Title of the invention: Ejector

(51) INT CL: **E21B 43/12** (2006.01) **F04F 5/16** (2006.01) **F04F 5/46** (2006.01)

(21) Application No: **0200544.5**

(22) Date of Filing: **11.01.2002**

(43) Date A Publication: **16.07.2003**

(52) UK CL (Edition X):
F1E EAA
E1F FLF

(56) Documents Cited:
GB 2261030 A **GB 2206093 A**
JP 080326700 A **US 6162021 A**
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(58) Field of Search:
As for published application 2384027 A *viz:*
UK CL (Edition V) **E1F** FLE FLF, **F1E** EAA ECB EEA
INT CL^7 **E21B** 43/12
Other: **EPODOC,WPI,JAPIO**
updated as appropriate

Additional Fields
INT CL^7 **F04F**

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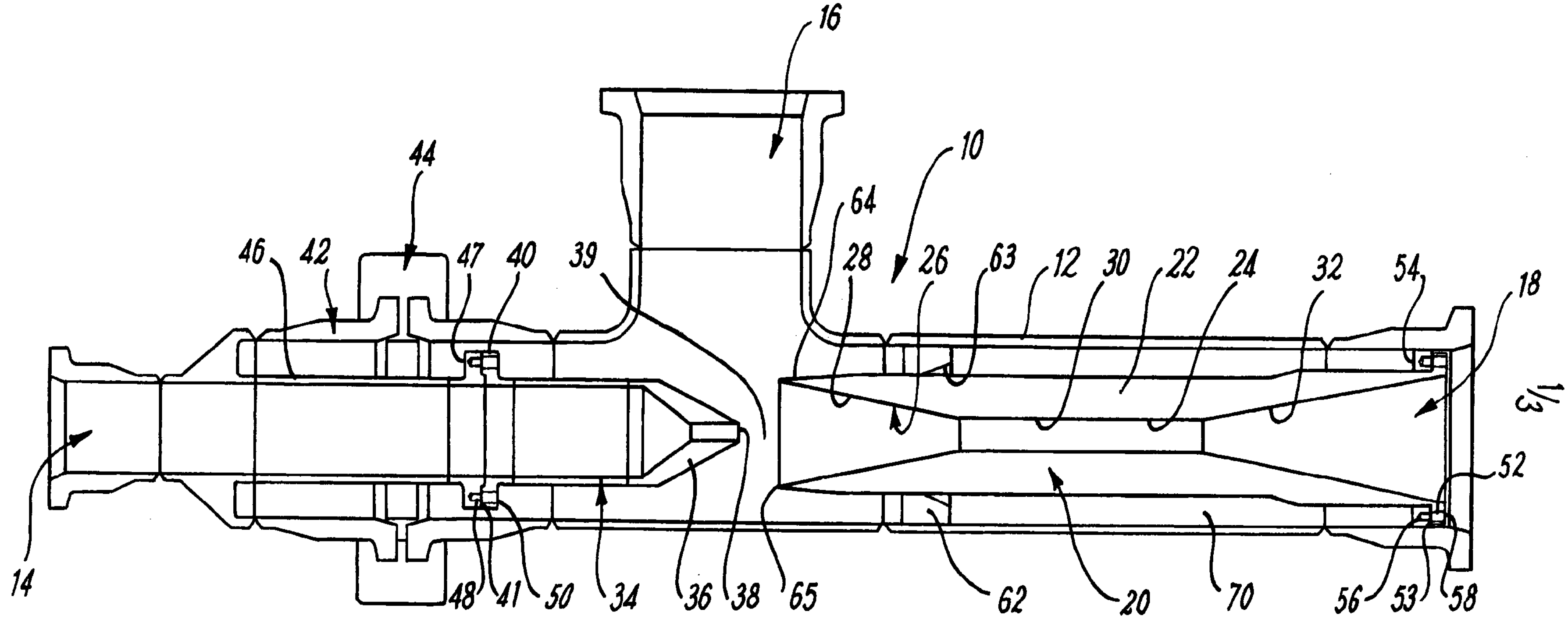

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FIG. 1

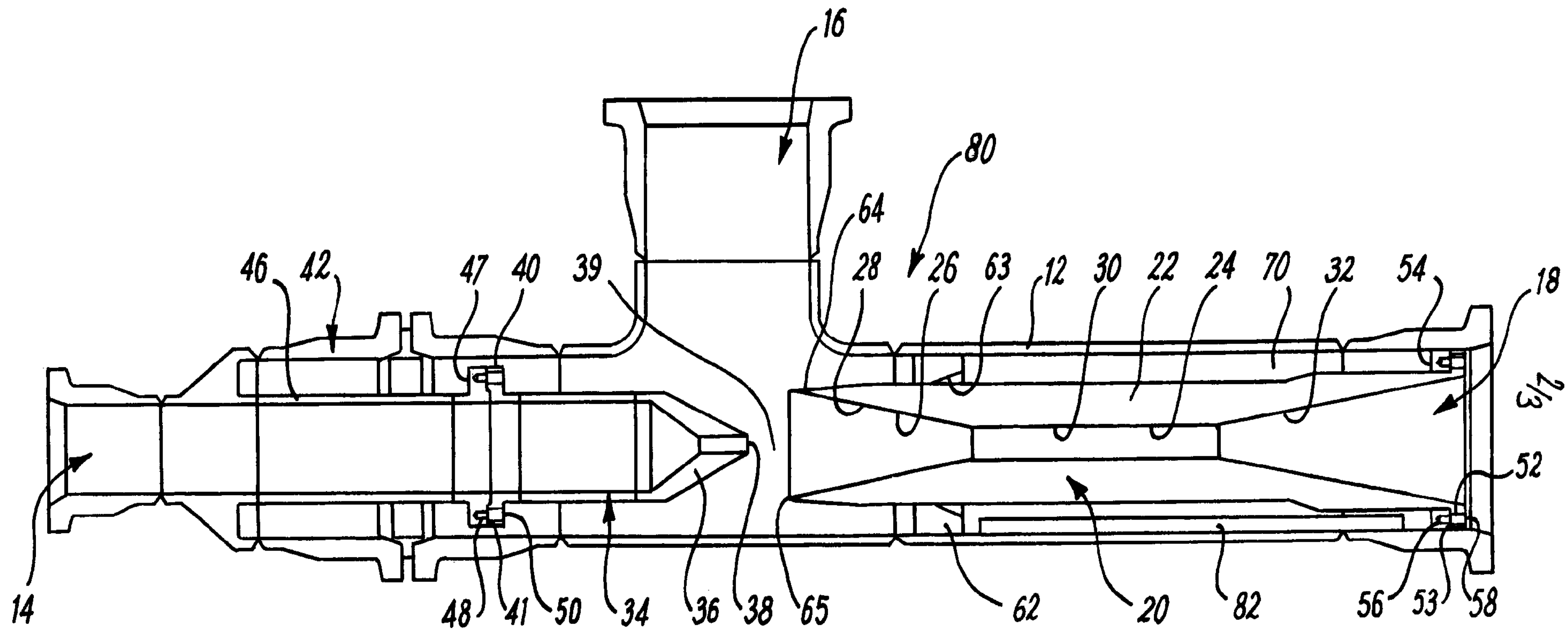
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FIG. 2

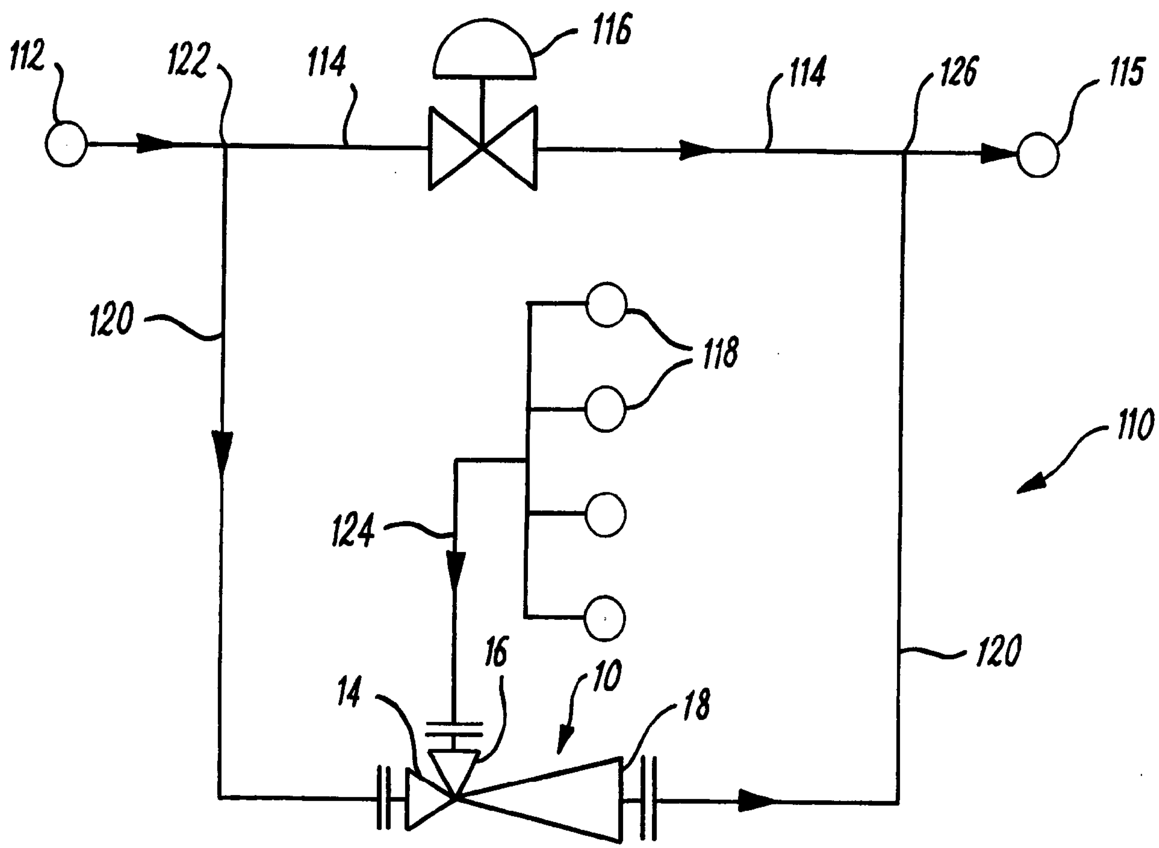

FIG. 3

Ejector

This invention relates to ejectors. More particularly, but not exclusively, the invention relates to ejectors for use in the oil and gas industries for removing gas or oil from low pressure wells.

In the oil and gas industries, it is known to use the pressure from a high pressure well to assist in extracting gas or oil from a low pressure well. This is generally done by the use of an ejector, the fluid from the high pressure well passing through the ejector and entraining therewith fluid from the low pressure well.

According to one aspect of this invention there is provided an ejector comprising a housing having a first inlet connectable in fluid communication to a first supply of a fluid at a first pressure, an outlet for the fluid, and a second inlet connectable in fluid communication to a second supply of a fluid at a second pressure, the first pressure being higher than the second pressure, and the ejector further including variable inlet nozzle means within the housing to receive fluid from the first supply, the inlet nozzle means having a narrowed throat region, and variable outlet diffuser means within the housing through which fluid can be discharged via the outlet, wherein the outlet diffuser means has an outer wall, and a space is defined between the housing and the outer wall of the outlet diffuser, the space being in fluid communication with the fluid passing though the ejector.

In one embodiment, the ejector comprises a housing having a first inlet connectable in fluid communication to a first supply of a fluid at a first pressure, an outlet for the fluid, and a second inlet connectable in fluid communication to a second supply of a fluid at a second pressure, the first pressure being higher than the second pressure, and the ejector further including variable inlet nozzle means within the housing to receive fluid from the first supply, the inlet nozzle means having a narrowed throat region, and variable outlet diffuser means within the housing through which fluid can be discharged via the outlet, the outlet diffuser means being arranged to receive

fluid from the inlet nozzle means and the second inlet, wherein the second inlet is arranged in fluid communication with a region between the inlet nozzle means and the outlet diffuser means,

whereby fluid from the second supply is entrained by the flow of fluid through the ejector from the first supply to mix with the fluid from the first supply.

Preferably, the outlet diffuser means is variable by being removable and replaceable. Preferably, the inlet nozzle means is variable by being removable and replaceable.

Preferably, the variable outlet diffuser means comprises an outlet diffuser removably mounted within the housing. Preferably, the inlet nozzle means comprises an inlet nozzle removably mounted within the housing.

In one embodiment, the ejector comprises a first inlet connectable in fluid communication to a first supply of a fluid at a first pressure, an outlet for the fluid and a second inlet connectable in fluid communication to a second supply of a fluid at a second pressure lower than the first pressure, means for allowing fluid from the first supply to entrain fluid from the second supply, removable inlet nozzle means to receive fluid from the first supply, and removable outlet diffuser means through which fluid from the first and second supplies can be discharged via the outlet.

In one embodiment, the ejector comprises a housing having a first inlet connectable in fluid communication to a first supply of a fluid at a first pressure, an outlet for the fluid, and a second inlet connectable in fluid communication to a second supply of a fluid at a second pressure, the first pressure being higher than the second pressure, and the ejector further including removable inlet nozzle means within the housing to receive fluid from the first supply, the inlet nozzle means having a narrowed throat region, and removable outlet diffuser means within the housing through which fluid can be discharged via the outlet, the outlet diffuser means being arranged to receive fluid from the inlet nozzle means and the second inlet, wherein the second inlet is arranged in fluid communication with a region between the inlet nozzle means and the outlet diffuser means, whereby fluid from the second supply is entrained by the flow

of fluid through the ejector from the first supply to mix with the fluid from the first supply.

An outlet diffuser may be provided, the outlet diffuser being for use with an ejector as described above. Advantageously, the outlet diffuser is a discrete component mountable within the housing.

An inlet nozzle may be provided, the inlet nozzle being for use with an ejector as described above Advantageously, the inlet nozzle is a discrete component mountable within the housing.

The preferred embodiments of this invention are suitable for use in situations where the conditions of use of the ejector change over time. The internal parameters of the ejector can be varied to match the aforesaid changing conditions. The inlet nozzle and the outlet diffuser may be selected or manufactured to be suitable for use at the initial conditions of use. As the conditions of use change, the inlet nozzle and the outlet diffuser may be removed and replaced with a further inlet nozzle and a further outlet diffuser which may be selected or manufactured to be suitable for different conditions.

Preferably, the housing has a wall formed to withstand the internal pressure of the fluid therein. The outlet diffuser means may be in the form of an elongate tube having a conduit therethrough for the fluid. The conduit preferably has a portion with a diverging inner wall, said portion preferably being at an outlet end region of the conduit. Preferably, the tube has an outer wall which is spaced from the wall of the housing. The outlet diffuser may be arranged within the housing to allow fluid to pass into the space between the outer wall of the diffuser and the wall of the housing. This feature provides the advantage in the preferred embodiment that the outlet diffuser means does not need to be formed to withstand the pressure of the fluid within the housing, which results in the preferred embodiment being lighter than prior art diffusers.

In one embodiment, the outlet diffuser means is securable within the housing by securing means, which may be provided at one end region of the outlet diffuser means. Said end region of the outlet diffuser means is preferably adjacent the outlet. The securing means may comprise cooperating formations on the outlet diffuser means and on the housing. The securing means preferably comprises an outwardly extending flange on the outlet diffuser means. The securing means may further include an inwardly extending flange on the housing. Fastening means, for example a bolt, may be provided to fasten the inwardly extending flange on the housing to the outwardly extending flange on the diffuser means, thereby securing the outlet diffuser means to the housing. Other suitable fastening means can be used.

Support means may be provided to support the outlet diffuser means within the housing. The support means may be arranged towards, or at, an inlet end region of the outlet diffuser means. The support means may extend in an annular configuration between the outlet diffuser means and the housing. The support means may comprise a collar arrangeable around the outlet diffuser means. Alternatively, the support means may comprise an inwardly extending ring member on the housing or an outwardly extending ring member on the outlet diffuser means. Alternatively, the support means may comprise a plurality of spaced blocks.

The inlet nozzle means may be attachable within the housing by connection means, which may be provided at one end region of the inlet nozzle means. The connection means may comprise engageable formations on the housing and on the inlet nozzle means. The connection means preferably comprises an outwardly extending flange on the inlet nozzle means. The connection means may further include an inwardly extending flange on the housing, or said connection means may be a removable end part of the ejector. Said removable end part may have an insertion portion to which the flange on the inlet nozzle means can be fastened, preferably by suitable fastening means, for example bolts. The insertion portion may be provided with a further outwardly extending flange to engage the flange on the inlet nozzle means.

The ejector may include guide means to facilitate insertion of the outlet diffuser means into its position in the ejector. In one embodiment, the guide means may comprise a taper on an inwardly extending ring member mounted on the housing. In this embodiment, the guide means may also include a taper on an upstream end region of the outlet diffuser. The taper on the ring member may cooperate with the taper on the upstream end region of the outlet diffuser to guide the outlet diffuser into position on insertion of the outlet diffuser into its position in the ejector. The guide means may also constitute support means to support the outlet diffuser when the outlet diffuser means is installed in the housing.

In another embodiment, the guide means may further include at least one rail which may extend along the housing at a downstream end region thereof. Preferably, the guide means includes two of said rails arranged at a lower portion of the housing. Preferably, the rails are arranged side by side, desirably spaced from each other.

According to another aspect of this invention there is provided the use of an ejector as described above from the third paragraph onwards, in fluid communication with the first supply of fluid via the first inlet, and in fluid communication with the second supply of fluid via the second inlet, wherein the flow of fluid from said first supply through said ejector entrains fluid from said second supply via the ejector thereby extracting the fluid from said second supply.

Preferably, the outlet diffuser means can be varied to correspond to changing conditions of the first supply, and/or of the second supply, and/or the outlet. Preferably, the inlet nozzle means can be varied to correspond to changing conditions, for example pressure, of the first supply, and/or the second supply, and/or the outlet.

Advantageously, the outlet diffuser can be removed and replaced by a further outlet diffuser when the aforesaid conditions change, or change

sufficiently to require such removal and replacement. The further outlet diffuser is advantageously selected or manufactured to correspond to said different conditions. Advantageously, the inlet nozzle can be removed and replaced by a further inlet nozzle when the aforesaid conditions change or change sufficiently to require such removal and replacement. The further inlet nozzle is advantageously selected or manufactured to correspond to said different conditions.

In one embodiment, the method comprises, arranging the ejector in fluid communication via the first inlet with a first supply of a fluid at a first pressure, arranging the ejector in fluid communication via the second inlet with a second supply of a fluid at a second pressure lower than the first pressure such that fluid from the first supply can mix with fluid from the second supply in the ejector, and arranging the ejector in fluid communication via the outlet with a fluid discharge arrangement, and varying the inlet nozzle means and the outlet diffuser means when the conditions change at the first and/or the second fluid supplies and/or the outlet.

Preferably, the inlet nozzle means is designed for initial conditions of use of the ejector. Desirably, the step of varying the inlet nozzle means comprises replacing the first mentioned inlet nozzle means with a further inlet nozzle means. The further inlet nozzle means is preferably designed for different conditions of use of the ejector. Preferably, the outlet diffuser means is designed for initial conditions of use of the ejector. Desirably, the step of varying the outlet diffuser means comprises replacing the first mentioned outlet diffuser means comprises replacing the first mentioned outlet diffuser means with a further outlet diffuser means. The further outlet diffuser means may be designed for different conditions of use of the ejector.

An embodiment of the invention will now be described by way of example only, with reference to the accompanying drawings, in which:

Fig. 1 is a sectional side view of one embodiment of an ejector;

Fig. 2 is a sectional side view of another embodiment of an ejector; and

Fig. 3 is a schematic view of a gas production system incorporating an ejector.

Referring to Fig. 1, there is shown a sectional side view of an ejector 10, which comprises a housing 12 defining a first, or motive, inlet 14 for a fluid from a first fluid supply at a first, or high, pressure, and further defining a second, or suction, inlet 16 for a fluid from a second fluid supply at a second, or low pressure. The housing 12 also defines an outlet 18.

The ejector 10 further includes outlet diffuser means in the form of a diffuser 20 which is releasably secured within the housing 12. The outlet diffuser 20 comprises a tubular member 22 having an internal profile 24 therethrough in the form of a fluid passage. The precise configuration of the internal profile 24 will be determined by the conditions at the first and second fluid supplies, and by the pressure at the outlet 18. In the embodiment shown, the internal profile 24 has an inner wall 26 having a converging upstream section 28, a second section 30 of constant cross-section, and a downstream diverging section 32.

The ejector 10 also includes a releasably securable inlet nozzle means in the form of an inlet nozzle 34 having a convergent tip portion 36 to define a narrowed throat 38 through which the first fluid can flow. In other embodiments, the tip 36 may have a different configuration which is dependent upon the conditions in which it is used.

The fluid from the first, or high pressure, fluid source is introduced via the motive inlet 14 to the inlet nozzle 34. As the fluid passes through the inlet nozzle 34, it speeds up so that a high velocity jet emerges from the tip portion 36 of the inlet nozzle 34. The speeding up of the fluid as it passes through the inlet nozzle 34 is accompanied by a simultaneous reduction in its pressure. In thermodynamic terms, part of the original pressure energy that was present in

the fluid is converted to kinetic energy to produce the jet of high velocity fluid, which has a reduced pressure.

A suction inlet 16 is in fluid communication with a suction chamber 39 between the narrowed throat 38 of the inlet nozzle 34 and the diffuser 20. The suction chamber 39 is in fluid communication with the second fluid supply. By a principle of momentum transfer, kinetic energy is transferred from the high velocity jet exiting from the inlet nozzle 34 to the fluid present in the suction chamber 39. This results in the fluid from the second, or low pressure, fluid source being entrained with the fluid from the first fluid source, in a direction towards the diffuser. The transfer of momentum results in the speeding up of the fluid from the second fluid source and a slowing down of the fluid from the first fluid source as they both enter the outlet diffuser 20. In the converging section 28 of the outlet diffuser 20, the fluid from the first and second fluid sources combine and mix intimately while the fluid from the first fluid source continues to slow down, and the fluid from the second fluid source continues to speed up. This mixing continues through the second section 30 of the outlet diffuser 20 and as the mixture exits the second section 30, the mixing is substantially complete.

As the mixture passes through the diverging section 32 of the inlet diffuser 20, the fluid slows down, as the cross-sectional area increases. This deceleration is accompanied by a corresponding rise in pressure. In thermodynamic terms, kinetic energy is being transferred into pressure energy to enable the ejector 10 to compress fluid from the second fluid source against a back pressure.

As a result, fluid from a high pressure fluid source entrains fluid from a lower pressure fluid source and the resulting mixture is discharged from the outlet 18 at a pressure between the pressures of the first and second fluid sources.

The inlet nozzle 34 is a discrete component of the ejector 10 and is

removably secured in the housing 12 at the motive inlet 14. The inlet nozzle 34 includes connection means in the form of an outwardly extending first flange portion 40 which allows the nozzle 34 to be connected to suitable connection means at the motive inlet 14. In the embodiment shown, the connection means comprises end fitment 42 which is attached to the main body of the housing 12 by clamp means 44. The end fitment 42 includes a tubular insert member 46 extending therefrom into the main body. The tubular insert member 46 has an outwardly extending second flange portion 47 to enable the first flange portion 40 on the nozzle 34 to be connected thereto. Suitably threaded blind bores 48 are provided in the second flange portion 47 to receive bolts which pass through the correspondingly arranged through bores 50 in the first flange portion 40 and are threadably received in the bores 48 in the second flange portion 47. It will be appreciated, however, that other suitable connection means can be used to connect the inlet nozzle 34 to the housing 12. A gasket or seal 41 is provided between the first and second flange portions 40 and 47 to prevent leakage of high pressure fluid from the inlet nozzle 34 and the insert member 46.

In the embodiment shown, the outlet diffuser 20 is also a discrete component of the ejector 10 and is removably secured in the housing 12 by suitable securing means, for example, as described below. The outlet diffuser 20 includes a first flange member 52 at the outlet end region thereof which is arranged in engagement with an inwardly extending second flange member 54 extending from the wall of the housing 12. A gasket or seal 53 is provided between the first and second flange members 52 and 54 to prevent fluid at the outlet 18 from leaking into the space 70 (see below). The inwardly extending second flange member 54 is provided with threaded blind bores 56, and the outwardly extending first flange member 52 on the diffuser 20 is provided with through bores 58 to enable bolts to be received through the through bores 58 and into the threaded bores 56 to secure the first flange member 52, and thereby the diffuser 20 to the housing 12. It will be appreciated that other suitable securing means can be used.

In the embodiment shown, the opposite end region of the diffuser 20 is supported by support means in the form of an annular inwardly extending ring member 62 which extends around the upstream end region of the diffuser 20. The ring member 62 is attached to the wall of the housing 12, for example by welding.

The ejector 10 also includes guide means to guide the outlet diffuser 20 during installation to its installed position as shown in Fig. 1. In the embodiment shown in Fig. 1, the guide means comprise a tapered portion 63 of the ring member 62. The tapered portion 63 tapers inwardly from the downstream end of the ring member 62 to the central region of the ring member 62.

In the embodiment shown in Fig. 1, the guide means also includes a tapered region 64 on the outer surface of the upstream end region of the outlet diffuser 20. The tapered region 64 tapers outwardly from the upstream end 65 of the outlet diffuser 20 towards the central region of the outlet diffuser 20.

The tapered portion 63 of the ring member 62 and the tapered region 64 of the outlet diffuser 20 cooperate with each other to guide the outlet diffuser 20 to its installed position as shown in Fig. 1.

In use, as explained above, the second fluid from the low pressure fluid source passing through the inlet 16 is entrained by the main flow of fluid passing through the inlet nozzle 34 which passes into the outlet diffuser 20. In addition, some of the second fluid passing through the inlet 16 flows into a space 70 between the diffuser 20 and the housing 12. This has the advantage of ensuring the difference in pressure between the inside and outside of the outlet diffuser 20 is generally less than the difference in pressure between the inside of the outlet diffuser 20 and the outside of the housing 12 thereby removing the necessity of manufacturing the outlet diffuser 20 to withstand high pressures. With this type of construction, the housing, but not the diffuser, has to be designed to withstand the full design pressure. This results

in the preferred embodiment being much lighter than in the case where the diffuser and the housing are integral with each other, as with prior art ejectors.

Referring to Fig. 2, there is shown a further embodiment of the invention, comprising an ejector 80 which is similar to the ejector 10 and possesses many of the same features as the ejector 10. The ejector 80 differs from the ejector 10 in that it is much larger; the ejector 10 being substantially 1 metre or so in length, wherein the ejector 80 is several metres in length. The components, e.g. the outlet diffuser 20 and the inlet nozzle 34 are correspondingly larger and correspondingly heavier.

In order to obviate the problem, created by the larger and heavier components of the ejector 80, the guide means include guide rails 82 along which the outlet diffuser 20 is slid during its insertion into the housing 12. A pair of spaced guide rails 82 are provided at the lower part of the housing 12. The guide means also includes the tapered portion 63 of the ring member 62 and the tapered region 64 of the upstream end region of the outlet diffuser 20.

The precise configuration of the inlet nozzle 34 and the outlet diffuser 20 are determined by the conditions of the high and low pressure fluid sources. It is possible that the respective high and low pressures will not be accurately known, which can be the case in, for example, oil and gas wells. Thus, in order to ensure that the diffuser 20 and the inlet nozzle 34 are correctly designed, the housing can be constructed. An advantage of the preferred embodiment is that it allows the user to install the housing into the pipeline thereby allowing the user to run the pipeline, for example to carry out tests. During these tests, the conditions within the pipeline can be determined, and the pressure of the high and low pressure fluids at the respective first and second inlets and the pressure at the outlet, can then be accurately measured. With these measurements, the outlet diffuser 20 and the inlet nozzle 34 can be designed, manufactured and installed in the housing, which may be, if the user desires, after the drilling of the wells completed. The above embodiment also has the advantage that the ejector 10 can be used in situations where conditions of the

high and low pressure fluid sources change, which is likely in the oil and gas industries as the wells become depleted. In such a case different designs of outlet diffuser 20 and inlet nozzle 34 will be required. When replacement of the outlet diffuser 20 and the inlet nozzle 34 is necessary, the pipelines supplying the first and second fluid to the ejector 10, and the pipeline received fluid from the ejector outlet 18, are shut down and the outlet diffuser 20 and inlet nozzle 34 can be removed and replaced by a further outlet diffuser and a further inlet nozzle which are designed for different conditions.

Referring to Fig. 3, there is shown a schematic view of a gas production system 110 used to extract gas from a source of gas at a first pressure, for example a high pressure gas well 112. The production system 110 comprises a first pipeline 114. The first pipeline 114 leads to suitable means 115 for disposing of the gas, for example for further gas treatment.

A supply of gas at a second pressure, for example low pressure wells 118, is also provided. A second pipeline 120 extends from the first pipeline 114 at a junction 122 and is used to extract gas from the low pressure wells 118. In order to effect such extraction, an ejector 10, as described above, is provided in the second pipeline 120. The first pipeline 114 has therein a flow control valve 116, which allows the ejector 10 to be bypassed.

The second pipeline 120 is connected to the motive inlet 14 and to the outlet 18 of the ejector 10, whereby gas from the high pressure wells passes through the inlet 14, and is discharged via the outlet 18.

A low pressure gas extraction pipeline 124 extends from the low pressure gas wells 118 to the suction inlet 16 of the ejector 10. Thus, the flow of gas from the high pressure wells 112 through the ejector 10 creates a suction effect and entrains gas from the low pressure wells 118, and compresses the gas from the low pressure wells 118. The gas from the low pressure wells 118 mixes with the gas from the high pressure wells 112 in the ejector 10, and the mixture is discharged from the outlet at an intermediate pressure between the aforesaid

high and low pressures. For example, the pressure of the gas at the high pressure wells could be 10 bar (g) (1MPa) the pressure at the low pressure wells could be 2 bar (200kPa) and the pressure at the outlet 18 of the ejector could be 5 bar (g) (500kPa).

The gas discharged from the outlet 18 of the ejector 10 flows along the second pipeline 120 which extends to the first pipeline 114 and is connected thereto at junction 126. The gas from the ejector 10 then flows to the disposal means 115 along the pipeline 114.

As the supply of gas from the high and low pressure wells 112, 118 becomes depleted, the conditions at the first and second inlets 14, 16 change, and the conditions at the outlet may also change. As a result, the inlet nozzle 34 and the outlet diffuser 20 which were designed for the original conditions are no longer suitable. The pipeline 120 is then shut down and the flow from the high pressure well 112 may be diverted through the flow control valve 116 to allow production to be maintained.

The ejector 10 is disconnected from the pipelines 120, 124 and the inlet nozzle 34 and outlet diffuser 20 are removed and replaced by a more suitable inlet nozzle and outlet diffuser, designed for different conditions. The ejector 10 is then re-installed in the pipeline 120 and connected to the pipeline 124. At least some of the flow of gas from the high pressure well 112 is then diverted along the pipeline 120 to pass through the ejector 10 and extract therewith the gas from the low pressure wells 118.

Various modifications can be made without departing from the scope of the invention for example, the precise configuration of the outlet diffuser 20 and of the inlet nozzle 34 will vary from use to use, as could the precise configuration of the housing 12. A further modification is that the region 39 between the inlet nozzle 34 and the outlet diffuser 20 could be within the outlet diffuser 20, i.e. the tip portion 36 of the inlet nozzle 34 could extend into the converging section 28 of the wall 26 of the outlet diffuser 20. Also, other embodiments of the invention may find uses in different applications where a

removable diffuser and inlet nozzle are an advantage. In addition, the above embodiment has been described with reference to the extraction of gas from gas fields. It will be appreciated that other embodiments of this invention can be used in other applications, for example the extraction of oil from oil fields, with appropriate modifications to suit different applications, as would be understood by the person skilled in the art. Also, other means for connecting the inlet nozzle and the outlet diffuser may be provided. For example, in the case of the diffuser, an inwardly extending ring member on the housing and an outwardly extending ring member on the outlet diffuser may be provided.

In some situations, for example in the extraction of gas or oil from underground wells, the fluid being extracted may carry sand. This can lead to erosion of the internal components of the ejector. In order to obviate such a problem the ejector 10, the outlet diffuser 20 and inlet nozzle 34 can be formed from an abrasion resistant material. Alternatively, the surfaces which are likely to suffer such erosion are either subject to a surface hardening processor covered with an appropriate resistant coating or lining.

Claims

1. An ejector comprising a housing having a first inlet connectable in fluid communication to a first supply of a fluid at a first pressure, an outlet for the fluid, and a second inlet connectable in fluid communication to a second supply of a fluid at a second pressure, the first pressure being higher than the second pressure, and the ejector further including variable inlet nozzle means within the housing to receive fluid from the first supply, the inlet nozzle means having a narrowed throat region, and variable outlet diffuser means within the housing through which fluid can be discharged via the outlet, wherein the outlet diffuser means has an outer wall, and a space is defined between the housing and the outer wall of the outlet diffuser, the space being in fluid communication with the fluid passing though the ejector.

2. An ejector according to claim 1 wherein the outlet diffuser means is variable by being removable and replaceable, the inlet nozzle means is variable by being removable and replaceable.

3. An ejector according to claims 1 or 2 wherein the the variable inlet nozzle means and the variable outlet diffuser means are arranged within the housing, and the outlet diffuser means comprises an outlet diffuser removably mounted within the housing, and the inlet nozzle means comprises an inlet nozzle removably mounted within the housing.

4. An ejector according to any preceding claim wherein the outlet diffuser means comprises an elongate tube having a conduit therethrough for the fluid, the conduit having a portion with a diverging inner wall, and said portion being at an outlet end region of the conduit.

5. An ejector according to claim 4 wherein, the housing has a wall formed to withstand the internal pressure of the fluid therein, and the tube has an outer wall which is spaced from the wall of the housing, and the outlet diffuser means is securable within the housing by securing means, provided at one end region of the outlet diffuser means.

6. An ejector according to claim 5 wherein said one end region of the outlet diffuser

means is adjacent the outlet.

7. An ejector according to claim 6 wherein the securing mean comprises cooperating formations on the outlet diffuser means and on the housing.

8. An ejector according to claims 6 or 7 wherein the securing means comprises an outwardly extending flange on the outlet diffuser means, and an inwardly extending flange on the housing.

9. An ejector according to claim 8 wherein fastening means is provided to fasten the inwardly extending flange on the housing to the outwardly extending flange on the diffuser means, thereby securing the outlet diffuser means to the housing.

10. An ejector according to any of claims 5 to 9, wherein support means is provided to support the outlet diffuser means within the housing, the support means being arranged towards, or at, an inlet end region of the outlet diffuser means.

11. An ejector according to claim 10, wherein the support means extends in an annular configuration between the outlet diffuser means and the housing.

12. An ejector according to claims 10 or 11, wherein the support means comprises a collar arrangeable around the outlet diffuser means.

13. An ejector according to claims 10 or 11 wherein the support means comprises an inwardly extending ring member on the housing or an outwardly extending ring member on the outlet diffuser means.

14. An ejector according to claims 10 or 11 the support means comprises a plurality of spaced blocks.

15. An ejector according to any of claims 3 to 14 wherein the inlet nozzle means is attachable within the housing by connection means provided at one end region of the inlet nozzle means.

16. An ejector according to claim 15 wherein the connection means comprises

engageable formations on the housing and on the inlet nozzle means.

17. An ejector according to claim 16 wherein the connection means comprises an outwardly extending flange on the inlet nozzle means, and an inwardly extending flange on the housing.

18. An ejector according to claim 17 wherein said connection means comprises a removable end part of the ejector, said removable end part having an insertion portion to which the flange on the inlet nozzle means can be fastened, preferably by suitable fastening.

19. An ejector according to claim 18, wherein the insertion portion is provided with a further outwardly extending flange to engage the flange on the inlet nozzle means.

20. An ejector according to any of claims 3 to 19 wherein the ejector includes guide means to facilitate insertion of the outlet diffuser means into its position in the ejector.

21. An ejector according to claim 20 wherein the guide means comprises a taper on an inwardly extending ring member mounted on the housing, and a taper on an upstream end region of the outlet diffuser.

22. An ejector according to claim 20 wherein the guide means includes at least one rail which extends along the housing at a downstream end region thereof.

23. An ejector according to claim 22 wherein the guide means includes two of said rails arranged at a lower portion of the housing, the rails being arranged side by side, spaced from each other.

24. An ejector according to any of claims 20 to 23 when dependent upon claim 10 wherein the guide means constitutes the support means to support the outlet diffuser when the outlet diffuser means is installed in the housing.

25. The use of an ejector as claimed in any preceding claim, in fluid communication with the first supply of fluid via the first inlet, and in fluid communication with the second supply of fluid via the second inlet, wherein the flow of fluid from said first

supply through said ejector entrains fluid from said second supply via the ejector thereby extracting the fluid from said second supply.

26. The use of an ejector according to claim 25 wherein the outlet diffuser means can be varied to correspond to changing conditions of the first supply, and/or of the second supply, and/or the outlet, the inlet nozzle means can be varied to correspond to changing conditions.

27. The use of an ejector according to claims 25 or 26 wherein the outlet diffuser can be removed and replaced by a further outlet diffuser when the aforesaid conditions change, or change sufficiently to require such removal and replacement.

28. The use of an ejector according to claim 27 wherein the further outlet diffuser is selected or manufactured to correspond to said different conditions.

29. The use of an ejector according to any of claims 26 to 27 wherein the inlet nozzle can be removed and replaced by a further inlet nozzle when the aforesaid conditions change or change sufficiently to require such removal and replacement.

30. The use of an ejector according to claim 29 wherein further inlet nozzle is selected or manufactured to correspond to said different conditions.

31. A method of using an ejector as claimed in any preceding claim, the method comprising, arranging the ejector in fluid communication via the first inlet with a first supply of a fluid at a first pressure, arranging the ejector in fluid communication via the second inlet with a second supply of a fluid at a second pressure lower than the first pressure such that fluid from the first supply can mix with fluid from the second supply in the ejector, and arranging the ejector in fluid communication via the outlet with a fluid discharge arrangement, and varying the inlet nozzle means and the outlet diffuser means when the conditions change at the first and/or the second fluid supplies and/or the outlet.

32. A method according to claim 31 wherein the inlet nozzle means is designed for initial conditions of use of the ejector, and the step of varying the inlet nozzle means comprises replacing the first mentioned inlet nozzle means with a further inlet nozzle

means, the further inlet nozzle means being designed for different conditions of use of the ejector.

33. A method according to claims 31 or 32 wherein the outlet diffuser means is designed for initial conditions of use of the ejector, desirably, the step of varying the outlet diffuser means comprises replacing the first mentioned outlet diffuser means with a further outlet diffuser means, the further outlet diffuser means being designed for different conditions of use of the ejector.

34. An ejector substantially as herein described with reference to Figs. 1 and 2 of the accompanying drawings.

35. The use of an ejector substantially as herein described with reference to the accompany drawings.